Diya Das
Postdoctoral Researcher, Molecular & Cell Biology
Moore/Sloan Data Science Fellow, Berkeley Institute for Data Science
University of California, Berkeley
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Diya applies quantitative methods to explore the regulation of complex biological processes such as stem cell-mediated homeostasis and regeneration. She collaborates with biologists, computer scientists and statisticians to collect, organize and analyze large, high-resolution datasets and interpret the resulting models.

Skills and Knowledge

- generation of biological models from genomic data
- single-cell RNA-sequencing analysis
- assay for transposase-accessible chromatin sequencing (ATAC-seq) and analysis
- computational methods instruction: Carpentries instructor and lesson curriculum maintainer
- event organization and logistics

Tools

- High performance computing
- R/RStudio
- Python (pandas, dask)
- MATLAB
- Bash
- Git/GitHub

Experience

Lab of John Ngai, UC Berkeley

Postdoctoral Researcher — June 2018 – Present

Graduate Student Researcher — May 2013 – May 2018

- Investigated how olfactory stem cells replace lost cell types in adulthood, including neurons.
- Discovered and characterized cell types deriving from quiescent stem cells using single-cell RNA-sequencing, including previously undescribed activated stem cells.
- Identified when stem cells choose between neuronal and non-neuronal fates by applying lineage trajectory algorithms developed in collaboration with statisticians and computer scientists.
- Distinguished modes of gene expression in neuronal and non-neuronal lineages.
- Explored global gene regulation by chromatin accessibility in stem cells using ATAC-seq.
- Assisted colleagues in gaining proficiency in computational tools.
- Code for co-first author papers at github.com/diyadas/HBC-regen & github.com/rufletch/p63-HBC-diff.

CDIPS Data Science Workshop, UC Berkeley, Participant — July 2016

- Developed topic tree for relationships between Wikipedia articles and classifier for new articles.
- Code available online at github.com/diyadas/Topic-Ontology.

Department of Molecular & Cell Biology, UC Berkeley, Graduate Student Instructor — 2013 – 2015

- Coordinated curriculum for discussion sections and review sessions, exam grading, and course policies with three professors and other graduate student instructors (GSIs) for each of:
  - Introduction to Neurobiology (~80 students, 2 GSIs) — August 2013 – December 2013
  - Genetics, Genomics & Cell Biology (~250 students, 5 GSIs) — January 2015 – May 2015

Lab of Sam Wang, Princeton University, Undergraduate Researcher — June 2009 – June 2012

- Analyzed canine temperament and neuroanatomy with MRI, culminating in award-winning thesis.

Education

University of California, Berkeley — August 2012 – May 2018
PhD in Molecular & Cell Biology

Princeton University — September 2008 – June 2012
AB in Molecular Biology
Certificate in Neuroscience, Quantitative and Computational Neuroscience honors track

Fellowships

- Moore/Sloan Data Science Fellow, Berkeley Institute for Data Science — August 2017 – Present
- Elizabeth Roboz Einstein Fellow in Neurosciences and Human Development — January – May 2015
- California Institute for Regenerative Medicine Predoctoral Fellow — January – December 2015

Publications (* = co-first author publication)   full list: **diyadas.github.io/publications**

- D. Risso, L. Purvis, R. Fletcher, **D. Das**, J. Ngai, S. Dudoit and E. Purdom. (2018). clusterExperiment and RSEC: A Bioconductor package and framework for clustering of single-cell and other large gene expression datasets. PLOS Computational Biology *14*, e1006378.
- R.B. Fletcher, **D. Das** and J. Ngai. (2018). Creating Lineage Trajectory Maps Via Integration of Single-Cell RNA-Sequencing and Lineage Tracing. BioEssays *40*, 1800056.
- K. Street, D. Risso, R.B. Fletcher, **D. Das**, J. Ngai, N. Yosef, E. Purdom and S. Dudoit. (2018). Slingshot: Cell lineage and pseudotime inference for single-cell transcriptomics. BMC Genomics *19*, 477.
- L. Gadye*, **D. Das***, M.A. Sanchez*, K. Street, D. Risso, A. Baudhuin, M.B. Cole, A. Wagner, Y.G. Choi, E. Purdom, S. Dudoit, N. Yosef, J. Ngai and R.B. Fletcher. (2017). Injury Activates Transient Olfactory Stem Cell States With Diverse Lineage Capacities. Cell Stem Cell *21*, 775-790.e9.
- R.B. Fletcher*, **D. Das***, L. Gadye, K.N. Street, A. Baudhuin, A. Wagner, M.B. Cole, Q. Flores, Y.G. Choi, N. Yosef, E. Purdom, S. Dudoit, D. Risso and J. Ngai. (2017). Deconstructing Olfactory Stem Cell Trajectories at Single Cell Resolution. Cell Stem Cell *20*, 817-830.e8.
- R.S. Geiger, C. Mazel-Cabasse, C. Cullens, L. Norén, B. Fiore-Gartland, **D. Das**, H. Brady. (2018). Career Paths and Prospects in Academic Data Science: Report of the Moore-Sloan Data Science Environments Survey. SocArXiv: osf.io/preprints/socarxiv/xe823.

Talks and Tutorials   full list: **diyadas.github.io/presentations**

- **D. Das**. Unraveling Adult Tissue Regeneration. 2018 Moore-Sloan Data Science Environments Summit, Park City, Utah. October 10, 2018.
- **D. Das**. Unraveling Tissue Regeneration With Single-Cell RNA-Sequencing. Northern California Computational Biology Symposium, UCSF. October 6, 2018.
- **D. Das**, K. Street and D. Risso. Analysis of single-cell RNA-seq data: Dimensionality reduction, clustering, and lineage inference. BioC 2018, Toronto, Ontario. July 27, 2018.
- **D. Das**. Injury Activates Transient Olfactory Stem Cell States With Diverse Lineage Capacities. UC Berkeley Developmental & Regenerative Biology Retreat. November 14, 2017.
- **D. Das**. Deconstructing Olfactory Stem Cell Trajectories at Single Cell Resolution. UC Berkeley Developmental & Regenerative Biology Retreat. January 9, 2017.
- C. Cypranowska and **D. Das**. Intro to Genomics Data Wrangling (Data Carpentry Workshop). Aug 6-7, 2018.
- **D. Das**, R.L. Barter, R. Barnes. Intro to Shell, Git and R (Software Carpentry Workshop). June 11-12, 2018.
- **D. Das**, et al. Various tutorials on Bash, GitHub, and R. UC Berkeley. 2017-2018. Code available online: github.com/diyadas/bash-tutorial, github.com/diyadas/yagt, github.com/diyadas/tutorials.

Leadership   full list: **diyadas.github.io/leadership**

Berkeley Institute for Data Science:

Executive Committee, Fellow Representative	June 2018 – November 2018
Career Paths and Alternative Metrics Working Group, Fellow Lead	October 2017 – Present

Beyond Academia:

Co-Director and Development Lead   January 2017 – January 2018
- Organized recruiting and personally held 1-1 informational meetings with 10 prospective members; 6 joined.
- Managed partnerships with campus units and planned on-campus recruiting event for employers.
- Planned two 2-day annual conferences for 300+ peers on career options outside academia, featuring 100+ speakers, with team of ~20 graduate students and postdocs (started May 2016).

Logistics, Speakers and Development Committees   May 2016 – March 2017
- Developed conference schedule for 32 workshops/panels based on 100+ speaker availabilities.
- Assigned rooms to 32 events by projected attendance and allocated day-of tasks to 34 people.
- Organized and coordinated speakers for four panels.
- Redefined advisory board responsibilities and membership, selecting new advisors to fulfill needed expertise.

CDIPS Data Science Workshop, **Co-Director**	January 2017 – August 2017
MCB Graduate Student & Alumni Association, **Student Co-President**	June 2015 – May 2017
MCB Graduate Affairs Committee, **Student Representative**	August 2013 – May 2015
Student Health Advisory Committee, **Grad Student Representative**	September 2012 – April 2016
Expanding Your Horizons at Berkeley, **Finance Agent and Signatory**	September 2012 – April 2015